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2017

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of the following report:**

**Telecommunications in Mexico since the 2013 Reform:  
Federal Telecommunications Institute Delivers,  
Competition Issues Remain**

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**Telecommunications in Mexico since the 2013 Reform:  
Federal Telecommunications Institute Delivers,  
Competition Issues Remain**

**by**

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**Report**

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Competition Issues Remain**

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The University of Texas at Austin, 2017

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**Abstract**

In June 2013, Mexico reformed its Constitution to promote competition, diminish entry barriers, and strengthen its telecommunications sector. The Economic Competition Federal Law marked Mexico's most radical move yet to revamp its telecommunications institutional framework, fight vested interests, and change the competitive landscape in hopes to boost investment and improve services. This report evaluates the Federal Telecommunications Institute (IFT) policy decisions and looks at market indicators in the fixed and mobile markets to assess change.

The IFT has had important institutional wins effectively implementing most asymmetric regulations. The courts have upheld its decisions, and –amid some controversy– selected a winner for the 700MHz band PPP contract. While three years is hardly enough time for structural change to take effect, evidence shows overall sector growth but little or no change in the competitive landscape trend. Market concentration remains high, broadband coverage and internet access remain at lower income country levels, and while mobile telephony prices have decreased, broadband prices have not. Furthermore, total investment and investment per revenue increased in the fixed market, although not in the mobile market. Finally, eliminating foreign investment caps has already benefited consumers with AT&T entering the mobile market and its subsequent removal of national and international roaming fees.

This report concludes that, despite their shortfalls, the 2013 Constitutional Reform and Telecommunications Law have contributed to overall institutional stability and sector growth.

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## Constitutional Reform

Mexico's highly concentrated and largely unregulated telecommunications sector limited its ability to encourage competition throughout the end of the twentieth century. While privatization brought improvements, a weak institutional framework made regulation ineffective. Liberalization failed to encourage market entry, stimulate investment, and promote competition.

In June 2013, Mexico reformed its Constitution to strengthen its 'dysfunctional' telecommunications sector, which, through its inefficiency reduced total welfare by USD 129.2 billion per year.<sup>1</sup> The Economic Competition Federal Law marked Mexico's most radical move yet to revamp its telecommunications institutional framework, fight vested interests and change the competitive landscape in hopes to boost investment and improve services. The 2013 Reform was an attempt to correct the institutional weakness and limited competition that resulted from the 1996 liberalization.

The liberalization reform privatized state-owned Telmex, (now a subsidiary of América Móvil) and guaranteed it a six-year national monopoly with little oversight. The now extinct regulatory agency, Comisión Federal de Telecomunicaciones (COFETEL), started operating six years after the privatization, was subject to short term political pressures and did not have an independent budget.<sup>2</sup> Privatization was ineffective due to the lack of openness, transparency and exclusion of relevant parties in the process. The market remained highly concentrated with limited geographic coverage, high prices, poor quality services and low investment.

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<sup>1</sup> OECD, Review of Telecommunication Policy and Regulation in Mexico, (2012).

<sup>2</sup> Scott Wallsten, *A New Dawn for Telecommunications in Mexico?*, Technology Policy Institute, (2014).

The 2013 Constitutional Reform<sup>3</sup> seemed different from the onset. One of its biggest components was the creation of the Federal Telecommunications Institute (IFT, for its acronym in Spanish) to replace COFETEL and granting it with greater enforcement capabilities. Since the Reform, important developments followed. The Federal Telecommunications and Broadcasting Law<sup>4</sup> was signed in July 2014 missing the constitutionally-mandated December 2013 deadline.<sup>5</sup> In 2015, AT&T entered the mobile market by purchasing Iusacell and Nextel –the third and fourth largest operators respectively by market share. Also, the IFT auctioned new spectrum in the AWS and 800Mhz bands, increasing commercially available spectrum by 40 percent, and published bidding requirements to operate a wholesale-only network in the 700MHz band, as mandated by the Constitutional Reform.

IFT has also had important wins. The government has supported IFT rulings – opposed to COFETEL’s prior experience– and the courts have upheld its decisions, the most important being the declaration of América Móvil and its subsidiaries including Telmex and Telcel<sup>6</sup> as “preponderant” in March 2014.<sup>7</sup> Under the new law, any firm with more than 50 percent of subscribers is assumed to have market dominance and thus subject to specific rules and regulatory oversight.

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<sup>3</sup> Will refer to as ‘Reform’ from here on.

<sup>4</sup> Secondary Law is that which hierarchically follows Constitutional Law and modifies federal, state and local laws with detailed regulation.

<sup>5</sup> The Executive presented a bill until March 2014.

<sup>6</sup> Telmex (includes Telnor) and Telcel (Radiomóvil Dipsa) are America Móvil subsidiaries in the fixed and mobile markets respectively. This report will use the name América Móvil when referring to both.

<sup>7</sup> Mexico uses the term “preponderant” as an equivalent for market dominance. “Dominant” will be used here on as synonym for preponderance.

IFT, “Resolution by which the Board of the Federal Telecommunications Institute determines the economic group conformed by América Móvil, Teléfonos de México (TELMEX) and its subsidiaries as preponderant operator in the telecommunications sector,” March 6, 2014.

By the end of 2015, América Móvil controlled 66.7 percent of the fixed market and 66.5 percent of the mobile market, down from 72 and 70 percent respectively at the time of the Reform. IFT concludes in its own three-year review that the Reform produced significant results including greater competition, lower prices, broader service offerings, quality improvements, more infrastructure, and higher foreign direct investment.<sup>8</sup> However, IFT analysis highlights short-term achievements and fails to provide an overall picture of the competitive landscape.

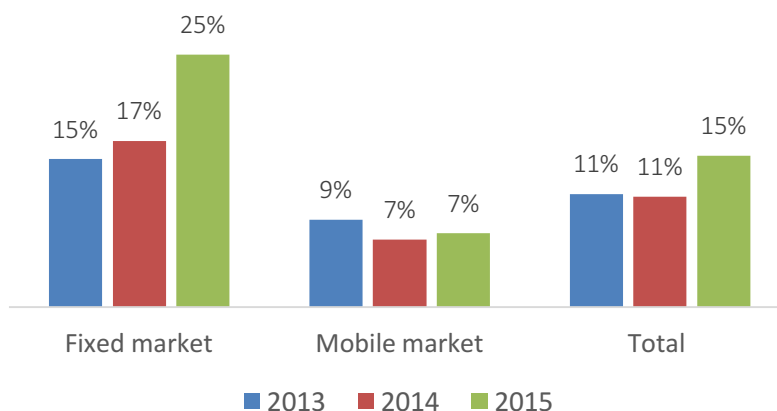
It is important to highlight the difference between IFT's objectives and policy success. For IFT, success lies in its ability to implement the law –which this report finds it has– while regulatory results are more nuanced. This report does not attempt to attribute change –or lack thereof– to specific regulations but rather looks at a longer time frame to answer whether the 2013 Reform has had positive institutional and regulatory outcomes.

While three years is hardly enough time for structural change to take effect, evidence shows overall sector growth but little or no change in the competitive landscape trend. Perhaps the most relevant result is the increase of investment as a share of revenue from 11 to 15 percent as displayed in figure 1.

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<sup>8</sup> IFT, *Telecommunications in Mexico. Three Years After the Constitutional Reform*, (2016).

Figure 1: Total Investment as a Share of Revenue



Note: IFT 2015 figures are not always consistent with operators' financial statements, if different the number reported by operator is used.

Source: IFT 4Q2015 and 4Q2014 Statistics Reports, América Móvil 4Q2014 and 4Q2015 Financial Reports, Megacable 4Q2015 Financial Report, Axtel 4Q 2015 Financial Results Press Release.

América Móvil reported 80 percent higher investment in the fixed market for 2015, accounting for 52.9 percent of total investment. Total investment growth from MXN 27.3 billion in 2013 to MXN 47.6 billion in 2015 and Telmex-Telnor doubling its investment percentage to 25 percent indicates that America Móvil was not only able to overcome the burden of regulation but could further invest in the fixed sector to maintain its market power. The increase can be attributed to América Móvil previously underinvesting and now having stronger incentives to invest due to competitive pressure. While this single change portrays an optimistic story, a deeper analysis of market share, coverage and price changes in the fixed and mobile markets reveals mixed results.

In the fixed market, Telmex already faced a steadily declining market share since 2013, with no apparent change after the Reform. Furthermore, Telmex's broadband prices increased and its speed performance is worse than its competitors at 5.2Mbps. In the mobile market, Telcel's market share had been slowly decreasing since 2006 and experienced its biggest drop since declared dominant. However, foreign investment does not seem to

contribute to this trend. By Q2 2016, AT&T controlled 9.2 percent of total subscriptions, less than the combined market share of purchased providers –Iusacell and Nextel– at the time of the reform. This said, the market grew substantially since the Reform with mobile broadband connections doubling from 24.4 to 50.1 connections per 100 people and mobile internet unique subscribers growing by 16.2 to 44.7 per 100 people by Q2 2016.<sup>9</sup>

In terms of prices, mobile telephony prices dropped 28.9 percent from 2013 to 2015 but the declining trend precedes reform and overall internet service prices did not change within the same period. Despite decreasing market participation, Telcel’s revenue remained stable in the last three years once again signaling that it has managed to overcome the impact of asymmetric regulation and increase its investment as a share of revenue by 1.4 percent. However, the mobile market’s total investment went down as a share revenue in contrast to the fixed market as AT&T’s investment in 2015 was lower than the combined investment of Iusacell and Nextel in 2013. This drop may be a result of AT&T merging two providers which takes time and can benefit from a more efficient allocation of investments.

#### COMPONENTS OF THE NEW LAW

The new law aimed to strengthen regulatory enforcement by granting the IFT constitutional autonomy and an independent budget –approved by its board and included in the annual Federal Budget presented to Congress. The board was increased from five to seven commissioners and candidates are now subject to committee evaluation prior to Executive approval and Senate ratification to limit political partisanship and prevent regulatory capture.

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<sup>9</sup> ITU, GSMA Intelligence.

The law also defines as dominant any telecommunications firm with more than 50 percent of users, subscribers or network traffic by relevant market and thus subject to asymmetric regulation.<sup>10</sup> Regulations include on-net/off-net nondiscrimination, removal of national roaming charges, infrastructure sharing, unbundled access to the dominant associated network and zero-price interconnection. Table 1 describes each measure and its policy objective.

Table 1: Asymmetric Regulation Measures Descriptions and Objectives

MEASURE	DESCRIPTION	OBJECTIVE
<b>On-net/off-net non-discrimination</b>	Tariff removal for calls within (on-net) and outside (off-net) the dominant firm's network.	Eliminate consumer preference to remain on the network with most users.
<b>Removal of national roaming charges</b>	No additional costs for final users initiating or receiving out of state calls.	Lower prices for consumers.
<b>Sharing infrastructure</b>	Access to dominant firm's infrastructure by competitors.	Reduce entry costs and give incentive to service providers to enter the market.
<b>Network unbundling</b>	Access to last mile local public network. <sup>11</sup>	Increase retail competition.
<b>Zero-price interconnection</b>	Competitors interconnect to the dominant firm's network at a price of zero.	Prevent unjustified rent extraction by incumbent. Allow small competitors to widen coverage and increase market share.

Source: Derived from Ley Federal de Telecomunicaciones y Radiodifusion (LFTR) and Wallsten (2014).

<sup>10</sup> Article 131, Ley Federal de Telecomunicaciones y Radiodifusión, July 2014.

<sup>11</sup> Under the law a local public network is defined as a "telecommunications network through which telecommunications services are commercially exploited" and does not define specific markets.

The law also allows firms to buy and sell spectrum licenses on a secondary market and establishes a wholesale-only wireless network in the 700 MHz band where the state retains control of the spectrum but builds and operates to provide wholesale services through a public-private partnership. The 700 MHz band will be part of the project *Red Compartida* which seeks to provide telecommunications coverage to at least 85 percent of the population by 2022.<sup>12</sup>

From design, initial sources for concern about the law's effectiveness include the arbitrary one-size-fits-all preponderance definition by market –not service–, the set zero-price interconnection, network unbundling and its potential to diminish incentives to invest, and the decision to keep 90 MHz of the 700 MHz band.<sup>13</sup> Some of these decisions stemmed from a history of weak regulatory enforcement. This Reform simply established set definitions for market dominance and zero-price interconnection to overcome failed attempts to declare América Móvil (particularly Telmex) with ‘substantial market power’ in 1997 and 2007 that only led to legal injunctions and decision overturns.<sup>14</sup>

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<sup>12</sup> Five years after PPP contract is signed, approximate date changed after RFP was published to first half of 2017.

<sup>13</sup> Although controversial, other countries with a single telephone network have also opted for unbundling. Scott Wallsten (2014) *op. cit.*

<sup>14</sup> CFC, *Declaratoria a Telmex Como Agente Con Poder Sustancial En Cinco Mercados Relevantes*, (2009).

Diario Oficial de la Federación, “Resolución Sobre Poder Sustancial de Teléfonos de México,” May 2007.

## What has Changed?

### LONG AWAITED DIVESTITURE

América Móvil was declared dominant in the telecommunications sector under the law's definition measured by its share of users in both fixed and mobile markets. In response, América Móvil, after filing unsuccessful legal injunctions, announced intentions to sell assets to fall below the 50 percent threshold and avoid asymmetric regulation. The announcement suggested that the law had achieved a first success by reducing market concentration without costly regulation or regulatory battles. However, no transaction has taken place.<sup>15</sup> América Móvil stated it postponed its divestiture plans due to the entrance of AT&T into the Mexican market and requested that regulations should be diminished and its dominant position in both markets revised.<sup>16</sup> Most recent data from The CIU and GSMA Intelligence for fixed and mobile markets respectively suggests that, aside from asymmetric regulation not being fully implemented, Telmex and Telcel's market participation by subscribers is still above the mandated 50 percent threshold. Additionally, the sale of assets on itself would not automatically remove América Móvil's preponderance status. Under the law, IFT would have to evaluate its effect in terms of subscriptions –the same metric that declared it dominant– for each market.

Despite avoiding divestiture, América Móvil has undergone some restructuring. In September 2015, it created Telesites to construct, install, maintain and operate its passive infrastructure<sup>17</sup> –approximately 10,800 mobile towers– through its subsidiary Opsimex. Telesites is now the second largest tower operator in Latin America with 12,874 towers

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<sup>15</sup> Telmex, *Report on America Móvil to the Mexican Stock Exchange (BMV)*, (Mexico City, 2014).

<sup>16</sup> “Reconsiderar Condición de Preponderante, Pide América Móvil,” *El Financiero*, July 16, 2015, accessed July 25, 2016.

<sup>17</sup> Non-electronic assets such as towers, antennas and other physical infrastructure.



and 54 percent market share in Mexico for 2015.<sup>18</sup> Because this move represents only an administrative separation, the IFT declared that Telesites is still subject to asymmetric regulation.

#### IFT AUTHORITY

The IFT has had important wins and setbacks. IFT began operations without a regulatory framework. Due to delays from the Executive branch, the secondary law was enacted seven months after scheduled, was controversial, and was thought to constrain the IFT by being too specific –limiting its capacity to regulate dynamic markets.<sup>19</sup> Interest groups and experts recommended that IFT file an appeal to the Supreme Court; however, the motion for the revision of 52 articles led by two IFT commissioners was voted down by the remaining board members.<sup>20</sup> IFT’s faculties were later tested in December 2014 when the Senate issued its own appeal claiming the IFT had superseded its authority, invading that of Congress over number portability regulation. The Supreme Court ruled unanimously in favor of IFT.

The IFT has imposed fines amounting to MXN 657.6 million (USD 36.5 million) by Q2 2016 in both the telecommunications and broadcasting sectors (see appendix).<sup>21</sup> Of relevance was IFT’s sanction to América Móvil in January 2015 for not seeking IFT

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<sup>18</sup> TowerXChange. <http://www.elfinanciero.com.mx/empresas/telesites-telxius-y-american-tower-pelearan-por-liderar-el-negocio-de-torres.html>

<sup>19</sup> Judith Mariscal, “Los Retos Que Enfrenta la Reforma de Telecomunicaciones,” in *Reforma de Telecomunicaciones y Competencia Económica - México más productivo y más competitivo* (MAPorrúa, 2014).

<sup>20</sup> “Entrevista con Carmen Aristegui Sobre Propuesta de Controversia Constitucional Contra LFTR,” February 5, 2015.

<sup>21</sup> Estimated by author based on IFT’s website.

approval for a 51 percent share purchase of broadcasting operator Dish México.<sup>22</sup> While other reasons might have played into the decision, América Móvil ultimately renounced its purchase rights. IFT has used its new legal attributions to sanction service providers for anticompetitive practices and its authority could be undermined if sanctions are dismissed by legal injunctions, a common result under COFETEL's mandate. Generally, firms file legal injunctions and the treasury cannot charge fines until all judicial proceedings are resolved.

On the competition and consumer welfare front, the picture is not so straightforward. IFT has adopted new regulations that could hamper competition in the long-term. These regulations:

- reduced the interconnection price that the dominant firm pays to competitors by 38.7% to MXN 0.19 per minute in the last two years which lowers prices but decreases competitors' revenue;
- leased additional spectrum in the Advanced Wireless Services (AWS) 1.7 MHz and 2.1 MHz bands through a Combinatorial Clock Auction securing América Móvil 40MHz –who now holds 41 percent of all leased spectrum up from 30 percent– and AT&T, the only other participant, 20MHz;<sup>23</sup>
- gradually reduced Calling Party Pays tariff which lowers prices for consumers on the dominant network but reduces switching incentives.<sup>24</sup>

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<sup>22</sup> IFT, “El Pleno del IFT Resuelve que las Relaciones Contractuales entre Telmex y Dish México Constituyen Una Concentración Que Debió Ser Notificada Antes de Su Realización (Comunicado 2/2015),” January 13, 2015.

<sup>23</sup> The CIU, “Sector Convergente: Telecomunicaciones y Radiodifusión en México,” March 11, 2016.

<sup>24</sup> Ernesto Piedras, “Contrarreforma del Regulador,” The CIU, July 14, 2016.

## ASYMMETRIC REGULATION

As part of a biennial impact evaluation, on April 2016 the IFT issued a public consultation on the effectiveness of asymmetric regulation applicable to dominant firms. The consultation concluded that three of the asymmetric regulations have been enforced and two delayed.

Fully enforced regulations include on-net/off-net nondiscrimination, elimination of national roaming charges and zero-price interconnection from competitors to dominant firm. Infrastructure sharing and network unbundling –perhaps the most crucial to obtain service-based competition despite its limitations mentioned above– were not implemented until January 2016. America Móvil (Telmex, Telnor and Telcel) submitted its infrastructure sharing reference offer in June 2015 and was approved in November 2015.<sup>25</sup> Telmex and Telnor submitted its local loop unbundling reference in November and was approved in December 2015, more than a year and a half after America Móvil was declared dominant.<sup>26</sup>

## SECONDARY SPECTRUM MARKET

In March 2016, IFT issued guidelines that enabled the secondary spectrum market for commercial and private use.<sup>27</sup> This measure allows market access to radio spectrum already available without additional government involvement and helps ensure this public

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<sup>25</sup> The aim of reference offers is to establish terms, conditions, technical specifications and quality standards for third party use of passive infrastructure surplus capacity and local loop access. IFT, *El Pleno Del IFT Modifica y Autoriza las Ofertas de Referencia del AEP En Telecomunicaciones*. (Comunicado 106/2015), November 2015.

<sup>26</sup> IFT, *El IFT Modifica y Aprueba las Ofertas de Referencia de Desagregación Efectiva de la Red Local Del AEP En Telecomunicaciones* (Comunicado 111/2015), December 2015.

<sup>27</sup> Diario Oficial de la Federación, Acuerdo Mediante el Cual el Pleno del Instituto Federal de Telecomunicaciones Aprueba y Emite los Lineamientos Generales Sobre la Autorización de Arrendamiento de Espectro Radioeléctrico, 30 March 2016.

good goes to the highest-valued use.<sup>28</sup> The guidelines state that any lease is subject to IFT approval and contracting entities must submit detailed transaction information. Telefonica successfully ceded AT&T spectrum rights in the 1.7/2.1 MHz band and América Móvil has requested permission to buy 60 MHz within the 2.5 MHz band from MVS.<sup>29</sup> The sale is contested as MVS concession title was set to expire in 2016 due to underutilization. This transaction would increase América Móvil's spectrum share for mobile services from 41 to 51 percent, leaving AT&T with 32 percent and Movistar with 16 percent.<sup>30</sup>

#### 700MHz WHOLESALE NETWORK - *RED COMPARTIDA*

The shared network bid was published in January 2016 for a public-private partnership to design, build, operate and maintain 90 MHz within the 700 MHz band and provide wholesale services. The Department of Communications and Transportation (SCT) is responsible for the bidding process while IFT oversees the selection process. The RFP was designed as a competitive tender or 'beauty contest' where the winner is first selected based on the greatest coverage offer above 85 percent second to its technical and economic proposal. Although this criterion is not subjective, as tends to be the case of beauty contests, it creates incentives for corruption and increases supervision costs. The bid design is critical to the project's overall outcome which can dissipate coverage benefits.

A new organization, Órgano Promotor de Inversiones en Telecomunicaciones, was created in March 2016 to administer the 700 MHz band and the fiber optic backbone previously administered by the state-owned electricity commission. The creation of a new

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<sup>28</sup> Gregory L. Rosston, "Increasing the Efficiency of Spectrum Allocation," Review of Industrial Organization (2014) 45: 221.

<sup>29</sup> "Acuerdo AMX-MVS, ¿Debe El IFT Limitar a Telcel En la Banda Del 2.5?," *El Economista*, November 30, 2016.

<sup>30</sup> The CIU, "Telecomunicaciones: Reforma y Contrarreformas," January 19, 2017.

entity raises concerns regarding unnecessary bureaucracy, added to early criticisms about the State's role as operator and its decision to concentrate valuable spectrum in a single player. Furthermore, public investment of USD 7 billion over ten years was reduced from USD 10 billion which may have diminished the incentives to invest and could be an early sign of inefficiencies associated with government owned infrastructure for wholesale services.<sup>31</sup>

The law being too specific by stating that the 700 MHz must be used as a wholesale only network limits policy alternatives. IFT will track coverage objectives through a population density mapping tool with information provided by the winning contractor and test data transmission rates.<sup>32</sup> As of now there are no explicit mechanisms to evaluate policy success. To monitor progress, IFT should track and provide detailed quarterly data that is not limited to aggregate coverage percentages, average speed rate and average cost per Mb, but is disaggregated by regions for fixed and mobile markets with before and after rollout comparisons.

The project has already faced difficulties staying on schedule. Initially scheduled to launch in 2014, the proposal submission deadline was changed twice since the bid was published and results were also delayed from mid-August to November 17, 2016.<sup>33</sup> Only two bids were submitted by consortia Altán and Rivada Networks. Rivada was disqualified for failing to pay the MXN 1,000 million guarantee on time and filed a legal injunction

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<sup>31</sup> Although the ownership model differs, Australia experimented with a government owned wholesale only fixed broadband network that has had cost overruns and taken longer than estimated to deploy. See Lucia Gamboa and Andrew Medina, *The End of Australia's National Broadband Network?*, (Washington DC: Technology Policy Institute, 2016).

<sup>32</sup> Minimum 1Mbps upload and 4Mbps download speeds as stated in the RFP. SCT, *Red Compartida: Bases Del Concurso Internacional*, (2016).

<sup>33</sup> "SCT Retrasa Fallo Sobre Red Compartida". *El Economista*, July 2016.

contesting its disqualification.<sup>34</sup> Mexican-US consortium Altán was awarded the 20 year PPP contract with a 92.2 percent coverage offer.<sup>35</sup>

The decision was not void of corruption scandals claiming that Altán had access to the Mexican government internal business model.<sup>36</sup> US-based, Irish-owned Rivada Networks later claimed the process was rigged. In response, SCT sued Rivada for defamation, the first suit of this kind by a federal agency.<sup>37</sup>

The previous normative and regulatory review suggests IFT secured its authority with overall initial success, implementing new regulations and imposing sanctions for anticompetitive behavior. These outcomes, however, do not directly translate to reform success. Important setbacks include IFT taking longer than estimated to implement infrastructure sharing and network unbundling asymmetric regulations, and – together with SCT– delaying the wholesale wireless network bidding process. Down the road, it will be important to evaluate the Red Compartida’s cost-effectiveness and whether the initiative crowded out private sector investment that would have occurred subsequently. The following section looks at quantitative indicators to evaluate changes in market share, coverage, prices and investment in the fixed and mobile markets, yielding mixed results.

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<sup>34</sup> “SCT Emitirá este Jueves Fallo de Red Compartida,” November 16, 2016.

<sup>35</sup> SCT, *La Secretaría de Comunicaciones y Transportes da a Conocer el Fallo del Concurso de la Red Compartida*, (November 2016).

<sup>36</sup> “Mexican Officials ‘Sought to Rig’ Mobile Bid Against Ganley’s Rivada,” *The Irish Times*, December 20, 2016. “Rivada Claims Altan Won Mexico’s Red Compartida Award ‘through improper and perhaps criminal means,’” December 15, 2016.

<sup>37</sup> “SCT Demanda a Rivada,” *El Economista*, February 5, 2017.

## Fixed Market

### MARKET SHARE

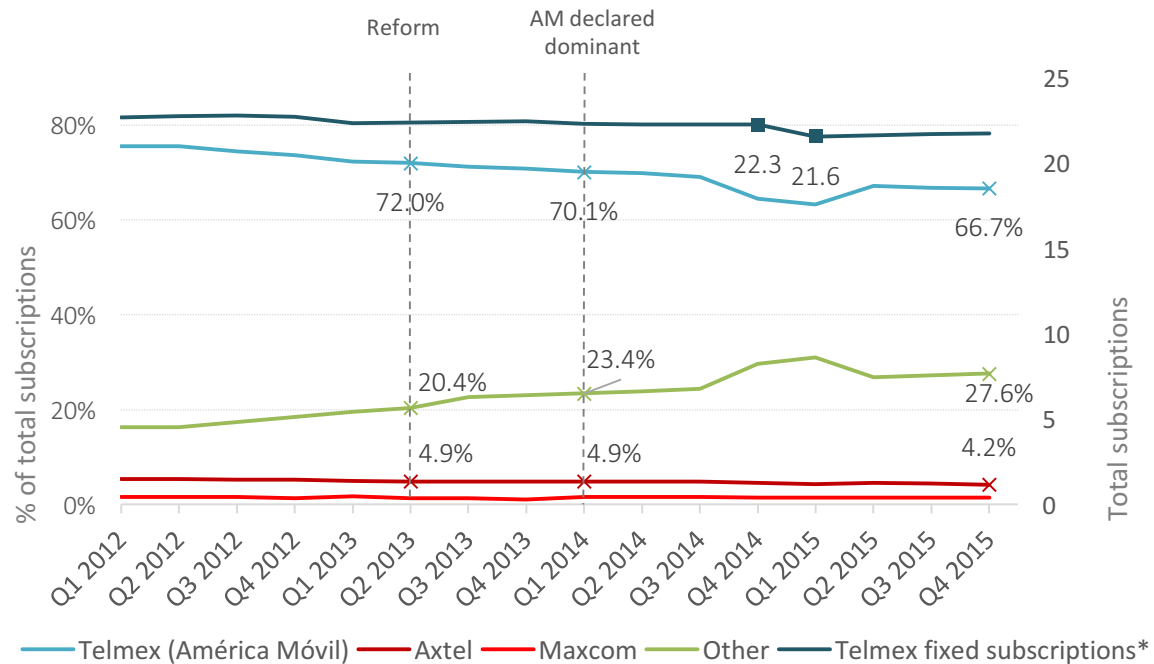
Telmex –América Movil fixed market subsidiary– retail market share by number of lines decreased 5.3 percentage points since the Reform and 3.4 since it was declared dominant (see figure 2).<sup>38</sup> Since the Reform, Telmex has experienced a decline of 2.9 percent in fixed services subscriptions from 22.4 million to 21.7 by the end of Q2 2016. The decrease is mainly associated with the decline of fixed telephony subscriptions attenuated by the growth of broadband subscriptions, which by the end of Q2 2016 accounted for 41 percent of Telmex fixed market. It is hard to pinpoint if the decrease in fixed telephony resulted from consumers switching service providers; however, Telmex fixed market share drop can be associated with the growth of Total Play and Grupo Televisa<sup>39</sup> subscriptions by 51.9 and 32.4 percent respectively from Q1 2014 to Q1 2015 (captured as ‘other’ in figure 2).

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<sup>38</sup> Derived from The CIU (March 2016), *op. cit.*

<sup>39</sup> Grupo Televisa includes Bestphone, Izzi, TVI and Cablemas. Cablecom was acquired in Q3 2014 and Cablevisión Red in Q1 2015.

Figure 2: Fixed Market Share



\*Includes fixed telephony, broadband and TV.

Source: Derived from The CIU (2016) and América Móvil Quarterly Financial Reports.

Figure 2 above shows a downward market share for Telmex prior to Q2 2013 suggesting that the Reform or its preponderance declaration have not influenced this trend. The decrease in market share between Q3 2014 and Q1 2015 can be associated with a loss of 757 thousand fixed subscriptions mainly from broadband which América Móvil attributes to a policy change in how it measures its active clients.<sup>40</sup>

## COVERAGE

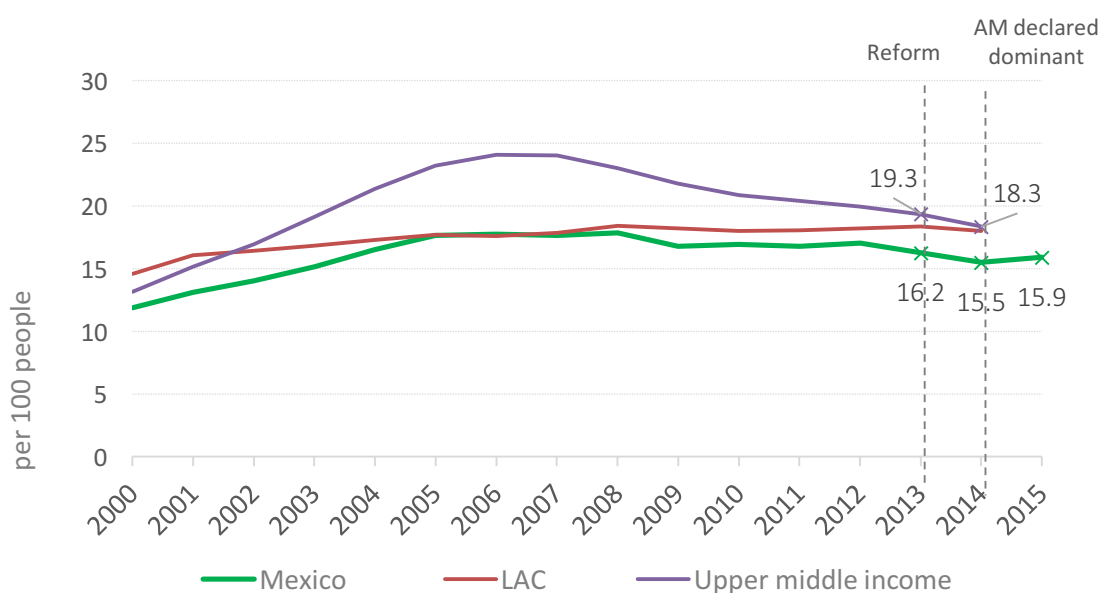
From 2013 to 2015, fixed telephone subscriptions decreased by 2.2 percent while fixed broadband increased by 15.9 percent. Figure 3 illustrates an already steady decreasing

<sup>40</sup> América Móvil, *Reporte Financiero IT 2015*, (México DF, 2015), 8.



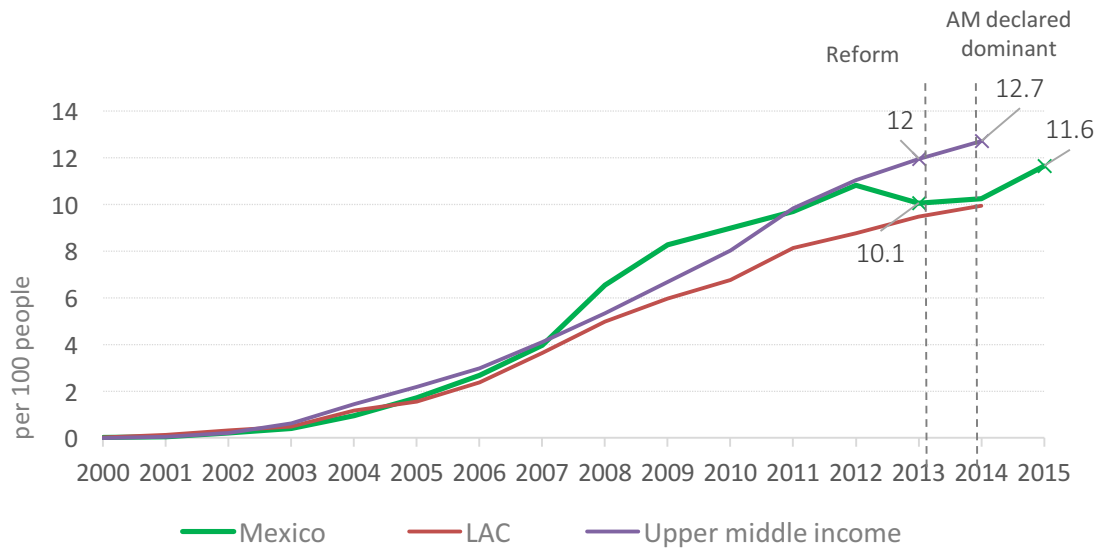
trend in telephone subscriptions consistent with other countries with a slight increase in 2015. Fixed broadband had been at comparable levels to upper middle countries but experienced a drop after 2012. It is not clear if the Reform or asymmetric regulation have contributed to the positive growth rate that followed which remains below upper middle income countries at 11.6 subscriptions per 100 people (see figure 4).

Figure 3: Fixed Telephone Subscriptions



Source: Derived from ITU and World Bank DataBank.

Figure 4: Fixed Broadband Subscriptions

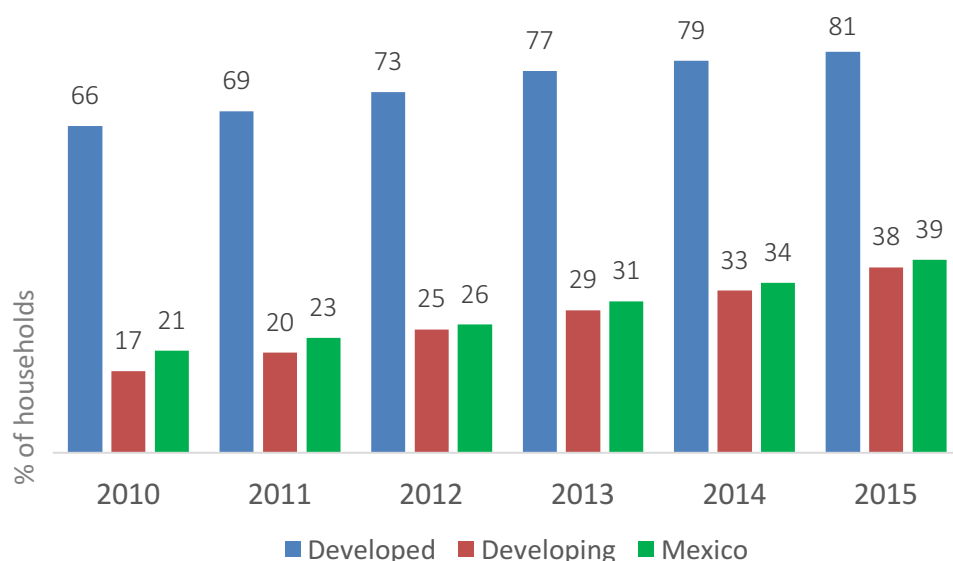


Source: Derived from ITU and World Bank DataBank.

The percent of households with internet access at home in 2015 was 39.2 percent, rising from 30.7 percent in 2013.<sup>41</sup> As figure 5 shows, this trend is consistent with the growth rate in developing countries but substantially below developed countries household penetration at 81 percent in 2015.

<sup>41</sup> In 2014 average household size in Mexico was 3.8. INEGI, National Survey of Household Income and Expenditure (ENIGH), 2014.

Figure 5: Internet Access at Home



Note: Percentages include access through a mobile device and may include micro-businesses with household contracts.

Source: Derived from INEGI-ENDUTIH, IFT and ITU ICT Key indicators.

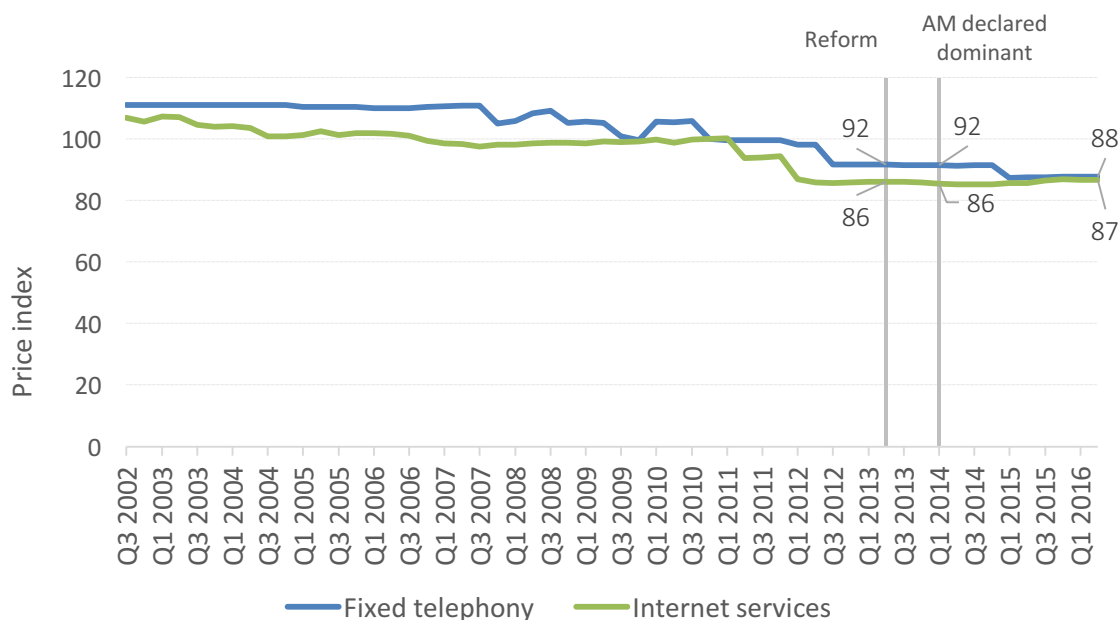
These figures indicate that Mexico still has poor coverage and its growth trend is similar to comparable income level countries. By mid-2016, fixed concentration and coverage evidence shows no signs of growth that could stem from the telecommunications reform.

#### PRICES AND SPEED

Figure 6 shows that prices have been dropping for both fixed telephony and internet services since 2002 and the trend has been slightly altered by regulation. Fixed telephony prices dropped by 4.4 percent in Q1 2015 due to the national roaming removal measure which explains the slight increase in share of fixed telephones from 2014 to 2015 shown in figure 4 above. Since April 2013, fixed telephone services represented 1.29 percent of

the National Consumer Price Index, meaning that the reduction by itself does not have a significant impact on the average Mexican consumer.<sup>42</sup>

Figure 6: Fixed Telephone and Broadband Price Changes



Note: Price index based on INEGI National Consumer Price Index, December 2010=100. Internet services includes both fixed and mobile connections.

Source: INEGI.

Fixed broadband prices increased by 1.6 percent from Q1 2014 to Q4 2015. In its 2015 last quarterly report, IFT explains the increase could be related to greater speed offerings previously unavailable to households, confirmed by the increase in the percentage of fixed broadband connections between 10Mbps and 99.9Mbps from 11 to 76 percent for the same time period.<sup>43</sup> While offerings are improving, Telmex who controls 67 percent of

<sup>42</sup> Telecommunication services contribute 4.81 percent in total including mobile telephone (2.11), fixed telephone (1.29), Pay TV (0.82), Internet service (0.42), national long distance (0.10) and international long distance (0.05) services. INEGI, as cited on IFT 4Q 2014 Report.

<sup>43</sup> IFT, “Cuarto Informe Trimestral Estadístico 2015,” December 2015. Akamai’s State of the Internet Report (Q1 2016) shows that for all internet connections only 4 percent are above 15Mbps. This measure can be deceiving as it includes a broad speed range.

the market had one of the slowest speeds among competitors in 2015 at 5.2 Mbps<sup>44</sup> and one of the worst performance in Netflix ISP Speed Index in Q4 2016 with 2.86 Mbps and 2.95 Mbps average prime time bitrate for Telmex and Telnor respectively.<sup>45</sup> Both ISPs experienced small improvements from 2.13 Mbps and 1.77 Mbps Q1 2015 levels.

## INVESTMENT

The IFT highlights the growth of the telecommunications sector's GDP vis a vis the national GDP with an average annual growth rate of 11 percent compared to 4 percent respectively from 2011 to 2015.<sup>46</sup> This growth, driven by the increase in average revenue after the Reform from MXN 366 billion to MXN 427, is a positive indicator of regulation not suppressing the market. It suggests that service providers, particularly those subject to asymmetric regulation have been able to overcome its potential negative impacts.

Fixed market total investment grew from MXN 27.3 billion in 2013 to MXN 47.6 billion in 2015 (see figure 7). The three largest operators, Telmex-Telnor, Grupo Televisa and Megacable increased their investment as a share of revenue as figure 9 shows. Telmex-Telnor doubled its investment as a share of revenue to 25 percent driven by an increase in total investment of MXN 12.3 billion from 2013 to 2015.<sup>47</sup> This indicates Telmex-Telnor overcame its revenue decrease associated with the removal of roaming charges on international long distance calls on January 2015 and the release of unlimited international talk time packages. The investment increase could stem from América Móvil expanding coverage in the fixed sector where it faces less competitive pressure. This move could

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<sup>44</sup> According to PCMag Index that combines 80% download speed and 20% upload speed by ISPs based on Ookla's Speedtest.net.

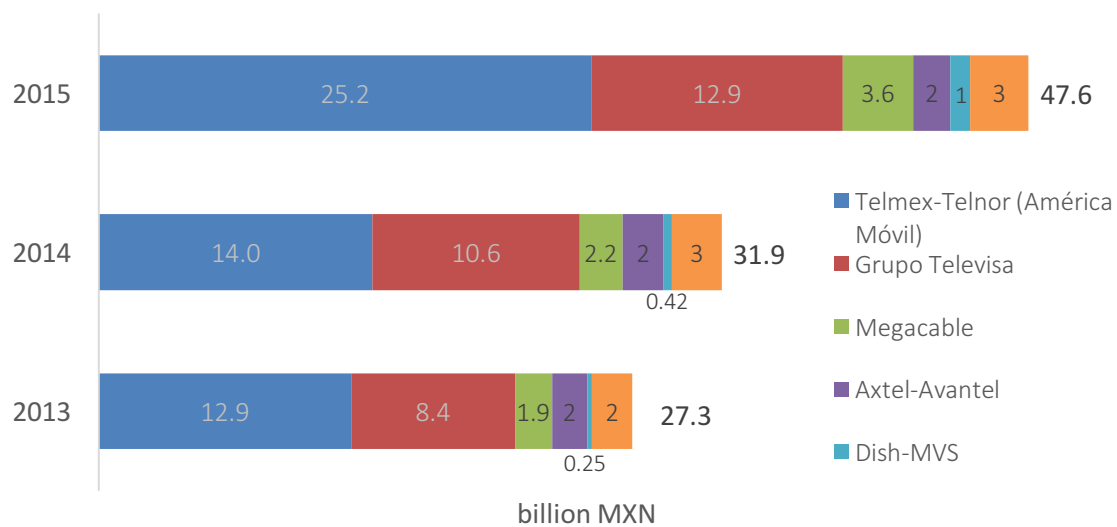
<sup>45</sup> "Mexico ISP Leaderboard," Netflix ISP Speed Index, December 2016.

<sup>46</sup> IFT, *Telecommunications in Mexico: Three Years After the Constitutional Reform*, (2016), 12.

<sup>47</sup> IFT 4Q 2015 Statistics Report with data provided by operators last updated on December 2015.

benefit the 61 percent of homes who still do not have access to internet but can also be a source of concern if it further increases América Móvil's market power.

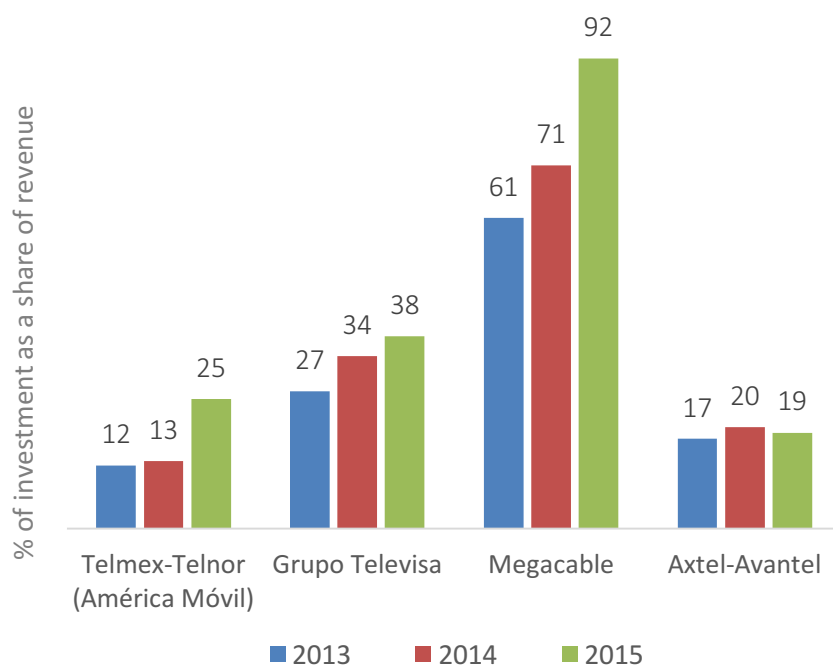
Figure 7: Fixed Market Total Investment by Operator



Note: IFT 2015 figures are not always consistent with operators' financial statements, if different the number reported by operator is used.

Source: IFT 4Q2015 and 4Q2014 Statistics Reports, América Móvil 4Q2014 and 4Q2015 Financial Reports, Megacable 4Q2015 Financial Report, Axtel 4Q 2015 Financial Results Press Release.

Figure 8: Fixed Market Investment as a Share of Revenue



Note: IFT 2015 figures are not always consistent with operators' financial statements, if different the number reported by operator is used.

Source: IFT 4Q2015 and 4Q2014 Statistics Reports, América Móvil 4Q2014 and 4Q2015 Financial Reports, Megacable 4Q2015 Financial Report, Axtel 4Q 2015 Financial Results Press Release.

Megacable had the biggest increase in investment by 31 percent as a share of revenue from 2013 to 2015 (see figure 8), a positive signal stemming from a smaller independent cable provider. While its MXN 3.6 billion investment represents only 7.6 percent of total investment for 2015 as figure 7 above indicates, Megacable benefited from the removal of national roaming charges and on-net/off-net tariffs as part of asymmetric regulations imposed on América Móvil (see table 1 for reference). Megacable has experienced significant growth in unique subscribers (28 percent growth from 1Q14 to 3Q16) and triple play services,<sup>48</sup> a positive indicator for the fixed telephony competitive landscape.

<sup>48</sup> Megacable Holdings, *3Q 2016 Financial Report*, (Guadalajara, Jalisco, 2016).

## Mobile Market

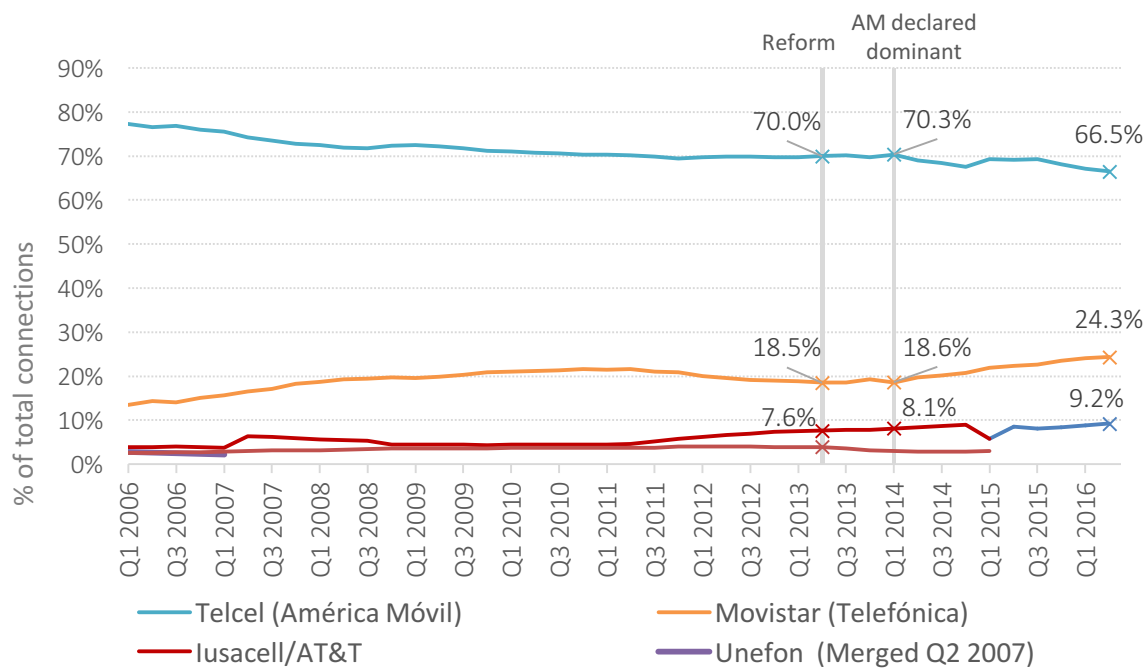
### MARKET SHARE

Telcel's –América Móvil's mobile market subsidiary– market share by number of connections had been slowly decreasing since 2006 but experienced its largest drop since declared dominant to reach 66.5 percent by Q2 2016 (figure 9). Movistar gained most connections from this reduction with an increase of 5.8 percent of its market share.

While it is difficult to separate the effects of new foreign competition and declaring America Móvil dominant, the elimination of foreign investment restrictions and the entrance of AT&T (through the purchase of Iusacell and Nextel) represent a regulatory success. As figure 10 shows, the data does not reflect changes in market share trends since 2006. By Q2 2016, AT&T controlled 9.2 percent of the market, less than the combined market share of Iusacell and Nextel at the time of the Reform. However, we could expect an increase of AT&T's share in the coming years due to its competitive advantage as the second largest wireless provider in the United States, hopefully not at the expense of Movistar.



Figure 9: Mobile Market Share



Note: Percentages do not include MVNO's.

Source: Derived from GSMA Intelligence.

The entrance of Mobile Virtual Network Operators (MVNOs) into the market in Q2 2014 led by Virgin Mobile also generated expectations for increased competition in the mobile market. By the end of 2015, there were six MVNOs with only 0.7 percent market share.<sup>49</sup>

## COVERAGE

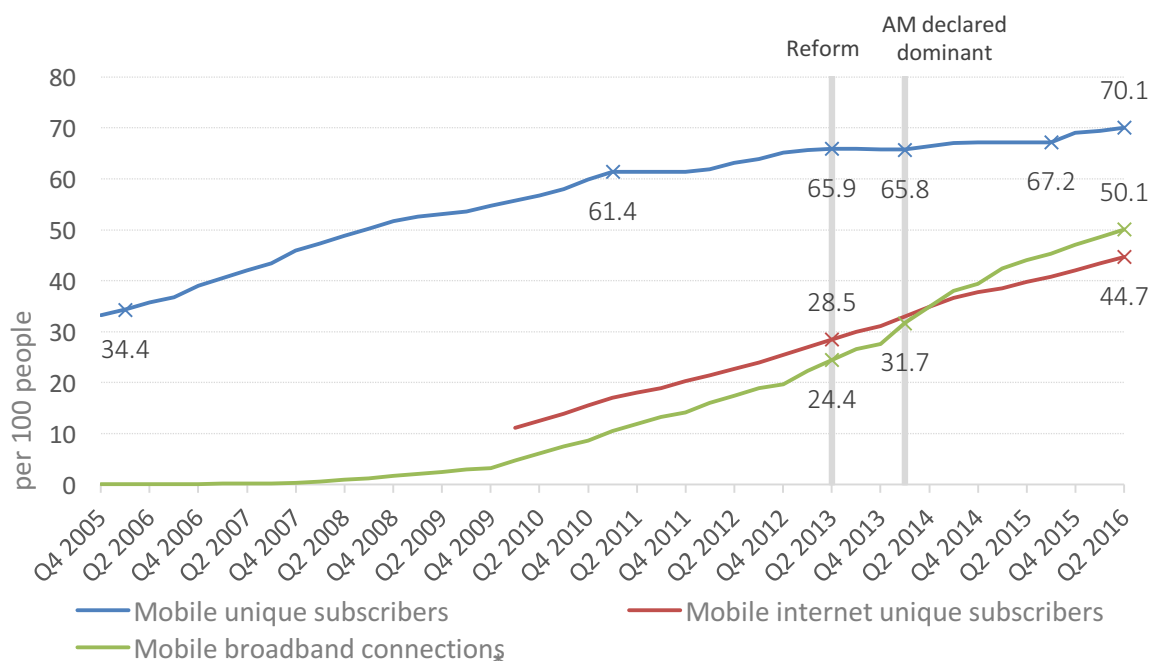
Mobile broadband has impressively doubled from 24.4 to 50.1 connections per 100 people since the Reform.<sup>50</sup> However, one must be careful to interpret this as half of the population having mobile internet services as many individuals have more than one

<sup>49</sup> Market share reported by IFT for Virgin Mobile, Qbo Cel, Maz Tiempo, Cierito, Weex.

<sup>50</sup> This number is lower than IFT's reported 54 per 100 people mobile broadband connections by Q2 2016 because it excludes M2M connections.

subscription –shown by the smaller 44.7 percent of mobile internet unique subscribers (see figure 10).

Figure 10: Mobile Telephone and Broadband Unique Subscribers



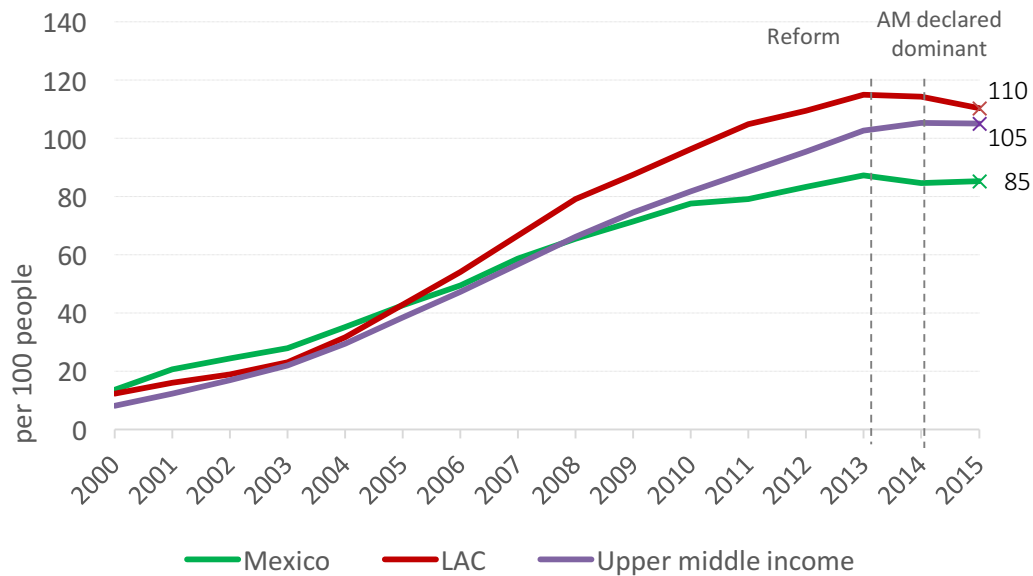
\*mobile broadband capable connections excluding M2M.

Source: ITU, GSMA Intelligence.

By Q2 2016, Mexico had 70.1 mobile unique subscribers per 100 people.<sup>51</sup> Even though there is a natural tendency for slower subscriber growth as it approximates market saturation, there was a slowdown in mobile unique subscriber growth since 2010 that may be reverting as of Q3 2015 due to the Reform. Furthermore, as figure 11 shows, in comparison to Latin America & Caribbean and upper middle income countries, Mexico's mobile penetration remains substantially below.

<sup>51</sup> This number from GSMA Intelligence data is significantly lower than the one commonly cited and reported by the ITU of 85.3 mobile subscribers per 100 people in 2015.

Figure 11: Mobile Subscriber Comparison



Source: World Bank DataBank.

In terms of mobile internet penetration, Mexico's 58 percent penetration is also below developed countries 66 percent penetration, although above developing countries at 40 percent.<sup>52</sup>

#### PRICES AND SPEED

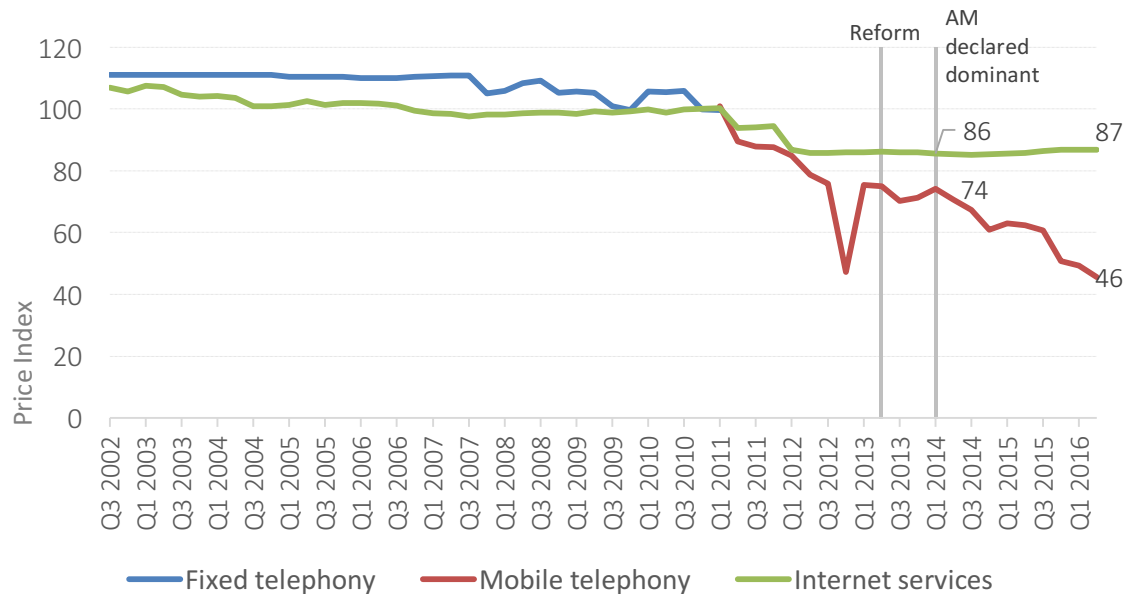
Between 2013 - 2015, mobile telephony prices dropped 28.9 percent despite a 9.1 percent inflation growth in the same period. This drop is a positive result as mobile services represent 2.11 percent of the national price index, the largest share out of telecommunications services and the eighth largest weight of the overall index.<sup>53</sup> However, overall internet services do not fare equally well with virtually no change in prices since

<sup>52</sup> GSMA Intelligence, *The Mobile Economy*, (GSM Association, 2016), <https://www.gsmainelligence.com/research/?file=97928efe09cdba2864cdf1ad1a2f58c&download>.

<sup>53</sup> Telecommunication services contribute 4.81 percent total including mobile telephone (2.11), fixed telephone (1.29), Pay TV (0.82), Internet service (0.42), national long distance (0.10) and international long distance (0.05) services. INEGI, as cited on IFT 4Q 2014 Report.

2013 as shown in figure 12. None the less, inflation has experienced a consistent upward trend in Mexico, 13.8 percent since 2013, while the communications price index has been negative at -21.9 percent –a common trend in similar Latin American economies.<sup>54</sup>

Figure 12: Mobile Telephone and Internet Price Changes

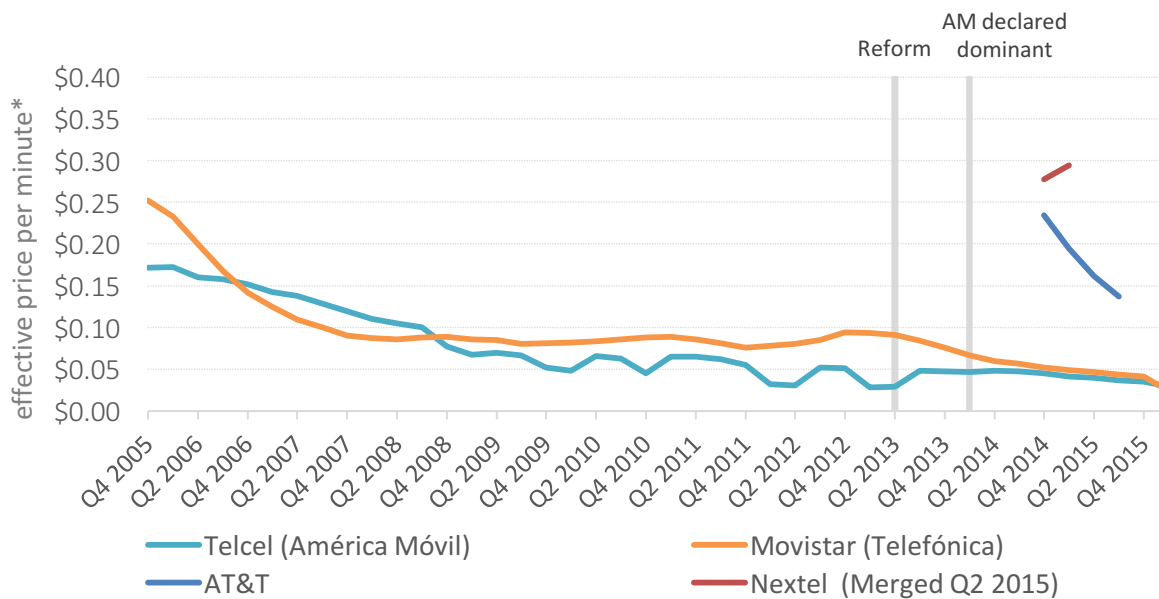


Note: Price index based on INEGI National Consumer Price Index, December 2010=100. Prior to 2011 mobile telephony was included in the fixed telephony index.  
Source: INEGI.

An analysis of pre-reform behavior is key to determining the effects of the Reform. Figure 13 shows that Movistar had begun lowering prices prior to the Reform while Telcel had been testing the market while slowly lowering prices as well. Although price information for AT&T is limited, figure 13 also indicates that market consolidation of Iusacell and Nextel has allowed AT&T to price more competitively and exert pressure on América Móvil and Movistar.

<sup>54</sup> Base 2013=100, the communications component includes fixed and mobile telephony, national and international long distance, internet, communications hardware and pay TV. The CIU, “Comunicaciones: Ancla de la Inflación en Latinoamérica,” January 16, 2017.

Figure 13: Mobile Prices per Minute by Service Provider



\*Effective price per minute: Blended average revenue per user (ARPU) divided by minutes of use per connection, expressed as a rolling average for the prior 12 months.

Source: Derived from GSMA Intelligence.

Key to AT&T entrance –and a direct consequence of the Reform by removing foreign investment caps– was the removal of international long distance and roaming fees, which pressured Telcel and Movistar to follow suit.<sup>55</sup>

In terms of speed, according to Ookla’s Speedtest, Mexico’s mobile average connection speed has improved by 77 percent in the past year.<sup>56</sup> Telcel is the leader in LTE capable devices and offers the fastest mobile download speeds of 16.6 Mbps, followed by AT&T at 14.2 Mbps and Movistar at 9.2 Mbps.<sup>57</sup> Akamai, however, reports a lower average mobile connection speed of 6.7 Mbps by Q3 2016.<sup>58</sup>

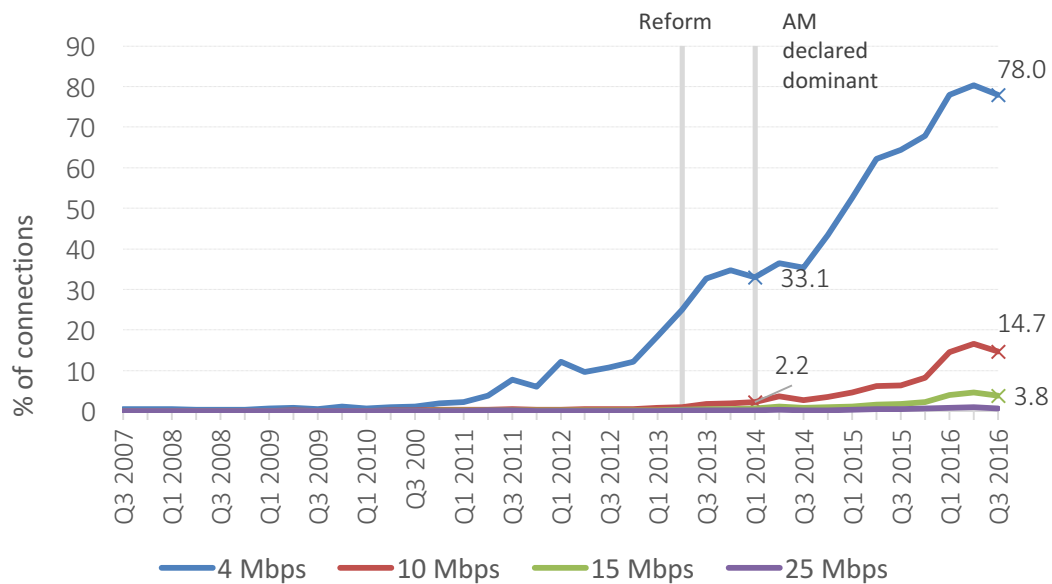
<sup>55</sup> The CIU, “Baja de Precios en los Servicios de Telecomunicaciones de México,” September 20, 2015.

<sup>56</sup> Ookla, “Mexico Speedtest Market Report,” 2016.

<sup>57</sup> *Ibid.*

<sup>58</sup> Akamai, *Q3 2016 State of the Internet – Connectivity Report*, Volume 9 Number 3 (2016).

Figure 14: Broadband Adoption Rates by Speed



Note: The graph shows the percentage of unique IP addresses making connections to Akamai from Mexico with an average connection speed threshold above 4 Mbps, 10 Mbps, 15 Mbps and 25 Mbps.

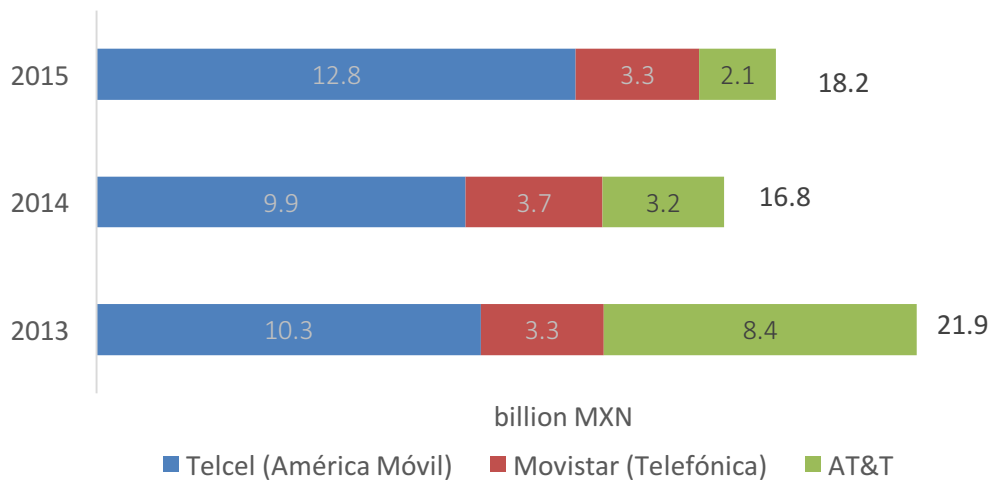
Source: Derived from data in Akamai's Connectivity Visualizations (2016).

Figure 14 shows that the percentage of connections at 4 Mbps has grown substantially from 33 percent since América Móvil was declared dominant to 78 percent by Q3 2016. This upward trend began prior to the Reform and it is hard to say if it has had a direct effect maintaining the trend. While speed is increasing in the mobile sector, 4 Mbps connection is still low and there is very slow adoption at higher speed tiers of 15 Mbps and 25 Mbps.

## INVESTMENT

Mobile market total investment decreased from MXN 21.9 billion in 2013 to MXN 18.2 in 2015. In contrast to the fixed market, investment as a share of revenue in the mobile sector is substantially lower at 7.3 percent compared to 25 percent and as figure 15 shows, total investment decreased by approximately MXN 3.7 billion since 2013.

Figure 15: Mobile Market Total Investment by Operator

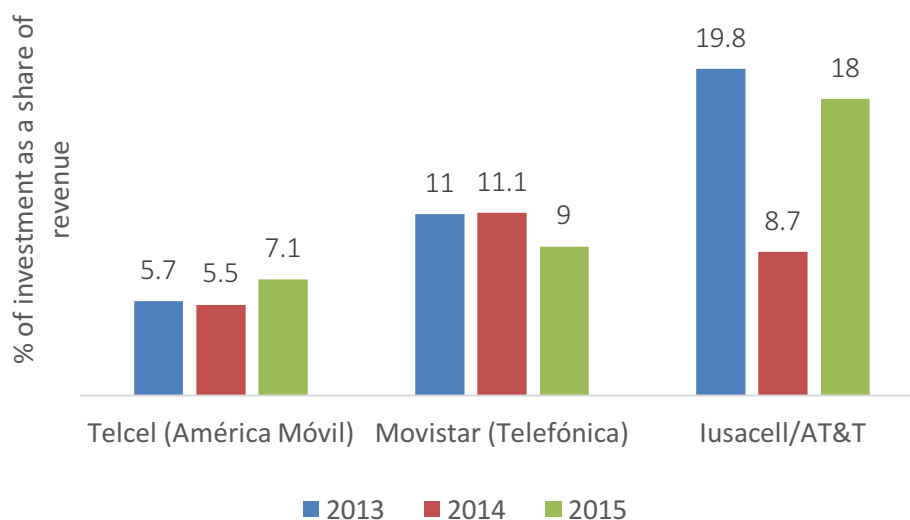


Note: Telcel's 2015 total does not include Opsimex investment. AT&T includes Iusacell, Unefón and Nextel for the three years.

Source: IFT 4Q2015 and 4Q2014 Statistics Reports, América Móvil 4Q2014 and 4Q2015 Financial Reports.

A positive sign is Telcel's slight (1.4 percent) but increased investment as a share of revenue due to a larger than proportional increase in total investment. Movistar's two percent decrease shown in figure 16 is associated with increased revenue, while AT&T's 1.8 percentage point decline is associated with a drop of investment from MXN 8.4 billion to MXN 2.1 billion.

Figure 16: Mobile Market Investment as a Share of Revenue



Note: Telcel's 2015 total does not include Opsimex investment. AT&T includes Iusacell, Unefón and Nextel for the three years.

Source: IFT 4Q2015 and 4Q2014 Statistics Reports, América Móvil 4Q2014 and 4Q2015 Financial Reports.

Telcel's market share had diminished prior to the Reform and continues this pattern while its revenue has been stable in the last three years. Telcel states it has been able to overcome the impact of asymmetric regulation through increased sales of fixed and mobile data and the reduction of hardware subsidies.<sup>59</sup> The previous data indicates that, while hard to separate its effects, the 2013 Telecommunications Reform and asymmetric regulation has not altered the mobile market.

<sup>59</sup> América Móvil 2014 Quarterly Report.



## Conclusion

Mexico can celebrate two important achievements from its second attempt to rectify competition issues through legal reform: IFT has defended its mandate and new regulation has not crowded out investment. However, competition issues remain. Market concentration had a slowly declining trend since 2012 and this paper finds that the 2013 Telecommunications Reform and subsequent actions have maintained this trend without substantial changes yet. Market concentration remains high as incumbent America Móvil retains above 60 percent market share for both fixed and mobile markets. Furthermore, broadband coverage and internet access remain at lower income country levels and while mobile telephony prices have decreased, broadband prices have not. America Móvil provides the poorest broadband quality service in the fixed market with some improvement in the mobile market offering the fastest connection among providers but with 78 percent of internet users still connecting at 4 Mbps.

While not all deadlines have been met, the IFT has effectively implemented most asymmetric regulations, the courts have upheld its decisions, and –amid some controversy– leased and selected a winner for the 700MHz band PPP contract. Since 2013, total investment and investment per revenue increased in the fixed market, although not in the mobile market. Eliminating foreign investment caps has already benefited consumers with AT&T entering the mobile market and the subsequent removal of national and international roaming fees.

While it is hard to isolate the effect of individual policies, this case highlights the complex relationship between regulation and competition. Reducing institutional and structural barriers is important for sector growth but regulatory reforms can have limited impact or prove too restrictive in the long term. The 2013 Constitutional Reform and Telecommunication Law have been crucial actions to ensure institutional stability and sector growth. While this report looks at a limited time frame, there is a positive outlook for continued investment, increased broadband access and lower consumer prices.

## Appendix

Table 2: IFT Sanctions

<b>Date</b>	<b>Firm</b>	<b>Reason</b>	<b>Amount (million MXN)</b>
February 2014	Mega Cable - T	Agreement to divide pay TV, telephone and internet market with Cablevisión	33.5
February 2014	Grupo Televisa – B (Cablevisión)	Agreement to divide pay TV, telephone, and internet markets with Cablevisión	8.7
2014	Megacable - B	Monopolistic practices	33.5
September 2014*	América Móvil - T (Telmex)	Monopolistic practices against Axtel on interconnection services	49.3
January 2015	America Móvil - T (Telmex)	Failed to inform on concentration intent	14.4
January 2015	Dish - B	Failed to inform on concentration intent	43
March 2015	Maxcom - T	Service failures	31.6
March 2015	Grupo Televisa - B (Cablevisión and Televisión Internacional)	Failed to provide information for investigation	5.7
November 2015	Telefónica - T (Pegaso PCS)	Service failures	410.9
March 2016	Maxcom - T	Did not meet service quality standards	31.6
March 2016	TV Azteca - B	Did not to comply with temporary channel use obligations	4.7
July 2016	Megacable - B	Did not comply with rebroadcasting obligation	24.2
September 2016	Megacable - B	Did not comply with rebroadcasting obligation in two additional cities.	24.2
September 2016	Grupo Televisa – B (Cablevisión and Televisión Internacional)	Did not comply with rebroadcasting obligation	66
April 2017	America Móvil - T (Telmex)	Use of TV concession without authorization	5.4

\*Investigation initiated by the Comisión Federal de Competencia (CFC), the antitrust agency replaced by the Comisión Federal de Competencia Económica (COFEE).

Note: The table includes sanctions to both Telecommunications (T) and Broadcasting (B) firms published by April 2017.

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